WHAT IS CLAIMED IS:

1. A wavelength tunable light source comprising:

a semiconductor laser in which one of end surfaces is applied an anti-reflection film;

a lens;

a wavelength selection portion including a diffraction grating and a mirror; and

a motor,

wherein a light beam is emitted from the one of end surfaces;

the lens collimates the light beam;

the wavelength selection portion selects a light beam having desired wavelength from the collimated light beam to return the selected light beam to the semiconductor laser so that laser oscillation occurs;

a center of rotation of the mirror is provided in a position where mode hopping is suppressed when a wavelength in the laser oscillation is tuned, and

rotation of the mirror is driven by a direct drive system by using the motor having a rotation shaft in the center of rotation of the mirror.

2. The wavelength tunable light source according to claim 1, further comprising an optical branching device provided between the semiconductor laser and the diffraction grating for taking out a part of the selected light beam, wherein the light beam taken out by the optical branching device is used as an output light beam.

3. The wavelength tunable light source according to claim 1, further comprising:

a rotary arm connected to the rotation shaft of the motor and having a forward end portion to which the mirror is attached; and

a rotation quantity detecting unit for detecting a quantity of rotation of the rotary arm.

4. The wavelength tunable light source according to claim 1, wherein the motor is a servo-motor containing an encoder.

5. The wavelength tunable light source according to claim 1, wherein the motor is a voice coil motor having torque only in a rotation range which is set in advance.

6. The wavelength tunable light source according to claim 3, wherein wavelength information in wavelength scanning is estimated on a basis of an output signal from the rotation quantity detecting unit.

7. The wavelength tunable light source according to Claim 4, wherein wavelength information in wavelength scanning is estimated on a basis of an output signal from the encoder.